Before The

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In The Matter Of	)	
	)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands	)	WT Docket No. 06-150
	)	
	)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	PS Docket No. 06-229
	)	
	)	

COMMENTS OF ANDREW M. SEYBOLD

Andrew M. Seybold
President and CEO
Andrew Seybold, Inc.
315 Meigs Road, A-267
Santa Barbara, CA 93109
805-898-2460

SUMMARY

Andrew Seybold hereby submits these comments on the Third Further Notice of Proposed Rulemaking (the "Third FNPRM") in the captioned proceedings.

While it is acknowledged that the FCC staff has reviewed and incorporated many of the comments previously submitted in earlier filings, it is my belief that the Third FNPRM , if it proceeds to a Rulemaking, will also result in a failed auction and, once again, further delay the intent of providing a commercial/public safety network to provide at least data interoperability.

It is my belief that we can provide the first responder community with these services in a much more expedient manner if the FCC works with the incumbent commercial network operators and the Public Safety Spectrum Trust (PSST) to provide for nationwide access to broadband services making use of the existing 3G networks already in commercial service.

At the same time, I also believe that making use of existing 3G networks would provide nationwide interoperability and enable the various agencies and organizations to plan further uses of the 700-MHz spectrum set aside for this combined network. It is also my belief that in addition to the stated goals of providing first responder interoperability, several other items need to be addressed. The first is the FCC's definition of what constitutes a first responder for the purposes of access to this network and the second is the use of this network to provide wireless broadband services to Rural America in a much more economical way than any of the other proposals before the FCC (TV White Space, AWS-3, and others).

I disagree that the FCC should mandate use of one of two specific technologies (LTE or WiMAX) for the regional spectrum auctions. Historically, the FCC has remained technology neutral and it has been proven, over and over again, that the market forces should determine the technology of choice. Further, to require the public safety community to use technologies that are not mainstream or for which standards are not yet complete is not in the best interests of either the public safety community or the commercial wireless community that is expected to fund this network.

My comments include the following:

1) We should make use of today's 3G technologies and not wait for the 700 MHz auction.

2) The FCC should broaden its definition of the term "first responder" to include other agencies that, by the nature of their services, are routinely dispatched with the first responders called out in the FCC Third FNPRM

3) The FCC should not require specific technologies to be deployed if the spectrum is auctioned on a regional basis, especially when those technologies are neither proven nor yet commercially available.

4) The 700-MHz D Block should also be employed to provide wireless broadband services for Rural America, both fixed and mobile.

5) The bidders for the 700-MHz spectrum should be system integrators that will work with all of the incumbent network operators to build out the nationwide network.

If the first responder community and the commercial network operators work together to utilize the existing 3G broadband networks with priority for the first responders on a seamless roaming basis, this network can be put into place within a year, and further planning and refinement will assure realization of the 700-MHz D Block concept, enabling a better, far more capable network than the one envisioned by the FCC in the Third FNPRM.

Before the

FEDERAL COMMUNICATIONS COMMISISON

Washington, DC

In the Matter of

Service Rules for the 698-746, 747-762 and 777-792 MHz Bands	WT-Docket No. 06-150
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	PS Docket No. 06-229

Comments on the Third Further Notice of Proposed Rulemaking

Comments Filed by:

Andrew M. Seybold
CEO and Principal Consultant
Andrew Seybold, Inc.
315 Meigs Road, A-267
Santa Barbara, CA 93109
805-898-2460
aseybold@andrewseybold.com
www.andrewseybold.com

Contents

INTRODUCTION

These comments are filed by Andrew M. Seybold, the CEO of a Consulting, Education, and Publications company involved in the wireless and mobility space. Neither myself nor my company have been engaged by any of the parties to this Third Further Notice of Proposed Rulemaking,

Before I provide my specific comments on the FNPRM, I would like to offer some observations that incorporate the intent of this FNPRM with the additional benefit of first responder interoperability years earlier than the proposed Rulemaking and would give the Public Safety community, which is already using existing commercial networks for data services, nationwide access to these networks during times of need.

Choosing a Technology

I do not believe that the Federal Communications Commission should impose specific technology requirements on any of the auction participants. Especially since this network, as envisioned, will be constructed over a 15 year period of time it is imperative that the first responder community have access to existing commercial broadband networks and that they be able to more freely between standard commercial networks and this one which will give them priority access. Many in the first responder community are already under contract with existing network providers and they should be able to continue to make use of the existing broadband networks as well as this new network as it is deployed over time.

I believe we can not only solve the first responder interoperability issue (at least for data), we can also use this opportunity to provide solid wireless broadband services to homes, business, and individuals in Rural America, especially in areas where it is has not been economical for commercial operators to build out their networks. Many of those living in Rural America must use expensive satellite access to the Internet or be satisfied with dial-up service at speeds that are not fast enough to render today's graphically intensive websites, let alone download music or video as most of the rest of us do today.

A Phased Approach

I would like to propose a phased system approach to the first responder and Rural America coverage issues. Interoperability on a broadband network will only solve some of the first responder community's interoperability issues and will do little, if anything, to provide the interoperable communications that are considered the lifeline of the first responder community: voice. The first few minutes and hours of an incident, large or small, local or regional, is the most important time in the handling of these incidents, and data plays a very minor role during this time.

Further, the availability of data and its value is different depending on where a first responder is in the chain of command. The Command and Control Centers, fixed and mobile, where operators whose sole function is to provide an interface between the public that requests help and those in the field who provide it is different from the scene commander, and the needs of those serving under his command will vary depending upon their assigned task or function. For example, a Swat commander needs more information than his team or, to put it another way, providing his team with information that is not relevant to their assigned task could impede rather than help them.

There is no need for a patrol officer in Dallas to have a conversation, either voice or data, with a patrol officer in Los Angeles. However, it is important for an officer in Dallas to be able to provide information about a suspect that has fled the scene to officers in surrounding communities—but it is NOT his function to transmit the information directly to other departments, it is the function of his command and control

center that should have all of the capabilities needed to relay the information in a timely manner, and once the chain of command has approved the transmission of the information.

There are times when it is important for multiple officers to communicate with each other directly, for example, during a high-speed chase that might involve state and local police units. In this case, the interoperability that is of primary concern is voice, with data perhaps as a back-up so the officers in pursuit can be made aware of the location of other police vehicles. Voice is the way they will communicate with each other, today and well into the future. I believe that many of these points have been lost in the attempt to create what is seen by some as a complete solution for the issues that came to light on 9/11 and during Katrina and the fires in California, but in fact, these problems have been well known to the first responder community for decades. During the rescue efforts after the Oklahoma Federal Building explosion, there are multiple documented examples of paramedics, police, and fire personnel who could see each other trying to reach the same victim having no communications. The commercial wireless networks were jammed to capacity even though the plea had gone out for non-emergency traffic to be halted. Being able to provide interoperable data between these services would not have solved the problem. Only interoperable voice, which the FCC seems to believe can be set up over the 700-MHz system effectively and efficiently, would have solved the problems.

The FCC's Belief

The Commission seems to believe that the 700-MHz shared network will solve most of the interoperability problems by providing data, voice, and video services for the first responder community, yet in Appendix A (page 209), the stated data rates considered to be acceptable are all less than 256 Kbps, far less than is being delivered today over CDMA2000 1xEV-DO and UMTS HSPA. Further, on the preceding page (208) it is acknowledged that outdoor video could require data speeds of over 384 Kbps (and my belief is that this will provide marginal at best video services to the first responder community). The rest of the data assumptions also appear low to me. In the late 1970s, Motorola was already providing data speeds of 19.2 Kbps to police vehicles for license checks and additional dispatch information, and this was using the public safety 25 KHz channels. Certainly, thirty years later, with broadband technologies, our goals for data speeds and data capacity should be well beyond what has been specified by the FCC in this document.

System Time Line

Further, with the new time table set out in the Third Further Notice of Proposed Rulemaking, significant interoperability would not be in place until year 10 of the license, which means it could easily be 2020. Are we willing to live with the interoperability problem for 10 to 15 more years? In that period of time, how many hurricanes, tornados, fires, and non-nature related major emergencies will we have? If the problem could be partially solved within the next 2-3 years and further addressed over the following 10 years, would that not be of great benefit to both the first responders and the general population that counts on these dedicated individuals to help us in times of disaster?

My proposal starts with a nationwide priority and roaming agreement between and among all of the commercial operators that offer broadband coverage today. Yes, there are two different technologies in use in the United States (UMTS/HSPA and CDMA2000 1xEV-DO), but there are a number of devices available to provide both technologies in a single device. Today, many first responders are already under contract with commercial 3G broadband operators (for less than the FCC suggested fee of $48.50 per month). A nationwide roaming agreement would provide the first level of data interoperability and it could be implemented quickly and easily.

Today, most first responders use broadband services for data (Computer Aided dispatch[1] NCIC inquiries, and in some cases encrypted messaging). Many departments are using commercial operators who are fully capable of providing broadband services for these applications. Having a nationwide roaming capability would add value for the first responder community. Customer "ownership" would remain with the network that signed up the customer, but customers would be able to roam on any and all networks. Because these services are already IP based, the IP address for any given First Responder could be handed off from one network to another. Because we are able to provide single data devices that can operate on all of today's commercial broadband networks, and because most of today's data services are vehicle bound (it is recognized that this will change over time), it would be fairly easy to implement a nationwide roaming pact between the network operators.

Existing 3G Broadband Technologies

Most of today's first responder broadband usage is limited to networks using a single technology that is UMTS/HSPA or CDMA EV-DO. However there are devices on the market today which provide access to both of these technologies, and would provide the seamless transition from a UMTS/HSPA network to a CDMA EV-DO network and vice versa. There is software already developed to provide this type of service, and these new devices are available for very little premium in price over single technology devices. I don't believe such a pact would need to be mandated by the FCC, but rather requested by the Public Safety Spectrum Trust (PSST), and it could be implemented prior to any auction of the 700-MHz D Block spectrum.

There are several ways in which this system could be implemented in short order. The first would be by agreement of the various incumbent network operators, a few changes to their back-end systems, and device software to manage the transitions from one network to another. Second, there is already at least one company, Aeris Communications,[2] that today provides machine-to-machine communications across most networks in the United States, Canada, and Mexico. Aeris has its own blocks of area codes and could easily provide near nationwide broadband services to the first responder community. It has its own back-end infrastructure and the ability to either bill customers directly or allows the incumbent network operators to retain customer "ownership" and billing. These are two ways in which a nationwide broadband system could be put into place within months, not years.

Broadband in Rural America

Next, there should be an incentive for network operators to build out additional coverage in Rural America. This would benefit not only first responders, but the population of Rural America as well, which is underserved today when it comes to Internet access. Today's data rates for fixed devices are more than adequate for most customers, and rural first responders would benefit from the additional coverage for existing networks. Funding for this portion of the network could be provided by federal agencies that are already providing funding for Rural America wireless services.

Interoperable data would start at the command and control level and would then move down to other first responders over time. Again, since the use of video and Voice over IP are several years away for the first

[1] Computer aided Dispatch (CAD) as used in the first responder community today is used for secondary dispatch information, the primary dispatch is still accomplished on their voice dispatch channels.

[2] Aeris Communications (www.aeris.net), located in San Jose, Calif. Today AERIS provides machine-to-machine communications. Aeris is not a client of Andrew Seybold, Inc.

responder community, this system would serve the local, regional, state, and federal agencies that need to communicate with each other during times of disaster. A single nationwide per-month price could be charged and I believe it could be less than $40 (with the exception of video services) and be affordable for both first responders and network operators.

During times of a major incident where there is a need for multiple departments and agencies to respond and work together for the health and welfare of the citizens, this type of network sharing would also ease any local congestion that might result from the number of first responders on the scene and their need to access information over the broadband network. In my scenario, each network that provides coverage in any or all of the affected region would take a portion of the traffic so that no single network would have to handle the entire traffic load. Since the back-end services that will be accessed are all IP-based, and since this network of networks would already support IP traffic across networks, the network resources could be allocated and the result would be more access for more of the first responder community during the event.

One caveat for this system is that the definition of "first responder" needs to be expanded to include technicians and engineers from commercial wireless companies and first responder networks (as well as a broader definition to include others who respond alongside the traditional First Responders). Had these communications specialists been permitted to do their jobs after Katrina, for example, and been permitted entry in the City of New Orleans, the communications infrastructure, both first responder and commercial, would have come back on line much sooner than it did. Instead, hundreds of COWs (Cells on wheels) and first responder equipment that had been staged was kept out of the City and the issue of command and control communications became a real problem.

In conclusion of this section of my comments, I believe that while the FCC, first responders, and vendors consider the best alternatives to the public/private sector cooperative network, we can make use of what is in place today to provide many of the same services planned for the future of our first responder community. By doing this, we can slow down and make sure the 700-MHz system is well defined and that it will be attractive to commercial wireless operators that will have to foot the bill for network construction.

We can solve some of the issues facing the first responder community, help Rural America with broadband wireless to the Internet, and buy ourselves more time to get the 700-MHz auction "right" this time around.

My Comments on the Third Further Notice of Proposed Rulemaking

It is acknowledged that many FCC staff members have spent a considerable amount of time reviewing the failed D Block action, reviewing the comments filed, and holding additional hearings. However, from my vantage point, the Third Further Notice of Proposed Rulemaking is fatally flawed in a number of areas. The result of these flaws could mean that the worst case would be that the FCC would not receive any qualified bids in the next round of auctions or that incumbent operators would not bid at the auction, leaving it open to a company representing only one of the technologies called out in the 3FNPRM to win the spectrum at the reserve price. In either event, the auctions, as specified in the 3FNPRM, are so convoluted and awkward as to minimize and not maximize the number of bidders and the amounts of the bids.

Choosing a Course of Action

There were several suggested courses of action presented in the last round of comments that do not seem to have been addressed in the new document. First was the suggestion by the two largest

incumbent network operators to do away with an auction and replace it with a request for proposal.[3] Next was the idea I[4] and several others[5] put forth suggesting that rather than a network operator, the spectrum holder be a network management firm such as Qualcomm, Northrop-Grumman or any number of companies that have the capabilities and knowledge to work with all of the incumbent operators, with the network being built out by all of the operators, perhaps with tax incentives. In this scenario, the network operators would each build a portion of the network and be entitled to use it for its own customers. It was also suggested that perhaps the best way to handle this type of shared network would be for the operators to use this new network to provide priority for customers on their existing networks that are entitled to priority in the event of a major incident.[6]

In both cases, the Public Safety Spectrum Trust (PSST) would only have to deal with a single entity in order to coordinate the partnership, making it easier for both parties to reach agreements on network status, build-out requirements and costs. In addition, the network could be built to include rural broadband services to many areas of the United States that have limited access via dial-up and/or satellite-only access. There are several organizations made up of many rural telephone, wireless, and electric utilities that could coordinate the build-out in Rural America and could provide right-of-way access and backhaul for the network in exchange for the ability to resell broadband services to homes and businesses located in these outlying areas.

Under item 4 of the 3FNPRM, the FCC recommends that three auctions take place simultaneously. The first auction would be for a single nationwide license and the winner would be able to choose any technology it felt was appropriate. The FCC did not recommend that a 4G technology be used, so it would be possible, and more practical, for incumbent operators to choose a third-generation technology at the beginning and perhaps migrate to a next-generation (4G?) technology in the future. This makes sense and continues the FCC's history of being technology agnostic. In reality, while the network is under construction, it would be best for the network and for first responders to employ a technology that is already widely deployed so a true cost savings for hardware could be passed on to the first responder community.

The other two auctions, divided into 58 regions, call for specific technologies to be deployed: the first for LTE (Long Term Evolution) and the second for WiMAX. The winning technology will be determined as the technology specified in the majority of regions that received winning bids. Once the technology is declared, at some future point in time, the FCC will re-auction the regions that did not have winning bids.

By requiring that these two auctions be tied to next-generation technologies, I believe the FCC is doing the first responder community a disservice. The outcome of the bids, even if successful, could mean that the network is never completed and that the fundamental reason for the public/private partnership is never realized.

---

[3] http://gullfoss2.fcc.gov/cgi-bin/websql/prod/ecfs/comsrch_v2.hts?ws_mode=retrieve_list&id_proceeding=06-229&start=1&end=168&first_time=N

[4] http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520012625 page 4

[5] http://gullfoss2.fcc.gov/cgi-bin/websql/prod/ecfs/comsrch_v2.hts?ws_mode=retrieve_list&id_proceeding=06-229&start=1&end=168&first_time=N

[6] http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520012625 page 5

FCC Assumptions

Further, the FCC is making assumptions about these technologies based on industry reports, lab tests, and marketing statements that may or may not become reality. Specifically, today's WiMAX it is a TDD[7] technology not suited for FDD[8] spectrum and with the potential to cause interference to other networks that will make use of FDD technologies since the spectrum holdings have been designed to provide FDD separation between cell sites and mobile devices. The WiMAX community has said it has FDD on its roadmap but has not been able to provide any timeline for FDD systems. Further, the FCC has mentioned that push-to-talk is also a network requirement yet, again, the WiMAX community does not provide PTT today. While PTT may be on its roadmap, this is not evident from the WiMAX Forum's website[9]. Lastly, the two most important aspects of this shared network are that it employ a technology that, due to its deployment scale around the world, provides cost savings to the first responder community, and implied but not stated, during the construction of this network the devices used by first responders should be back-compatible to the existing networks—not to one technology but to both of the major 3G technologies prevalent in the United States today (UMTS/HSPA and CDMA2000 1xEV-DO). Especially if the network is to be built out over a 15-year period, the first responder community will need to rely heavily on existing networks until the new network is built out to a point where it covers enough of the nation to be useful. Having coverage in some cities and areas and having to wait for others will not provide the type of interoperability services being envisioned by the FCC.

The second option, LTE, is at least part of many incumbent network operators' future plans on 700 MHz in their own spectrum holdings. As AT&T and Verizon Wireless build out their LTE networks on 700 MHz, they will be providing multi-mode devices to their customers. These devices will be able to operate on their 850, 1900, AWS and 700-MHz spectrum and in many cases will include voice and data services. When a customer is not within the 700-MHz footprint of LTE, the device will revert to the network operator's 3G network for broadband services. This will not only provide faster access to broadband for first responders, it will also provide a number of combination devices for first responders at reasonable pricing. LTE is an accepted worldwide standard and even Verizon Wireless has stated that it will be adding LTE to its CDMA network at least on its 700-MHz spectrum.

By requiring two auctions for the 58 regions of the country, the FCC has set up a situation where incumbent operators are likely to bid only on the LTE regions, if at all, and Greenfield operators or the only real WiMAX contender in the U.S. market will bid on the WiMAX regions. The problem with this is that those that support WiMAX need a nationwide block of spectrum in order to prove that their technology is a next-generation contender, and the incumbents may not feel there is any reason for them to bid. If the WiMAX regions win, or if a company favoring WiMAX wins the one nationwide license, the United States will have the only 700-MHz WiMAX system in the world for many years and, therefore, the cost of the equipment and devices will be higher than with any other technology.

It is clear that in the regional scenario the FCC felt it necessary to specify technologies because it is important that each region of the country have the same technology deployed. (This is more perception than reality with the capabilities of the new device chipsets on the market). But in doing so and choosing two future technologies, the FCC is betting that both of these technologies will really come to market in a timely manner and that they will provide the types of services the FCC envisioned, including voice and

[7] Time Division Duplex

[8] Frequency Division Duplex—today's commercial standard for Cellular/PCS systems

[9] WiMAX Forum http://www.wimaxforum.org/documents/faq/

push-to-talk voice[10], data, and streaming video. In section 120 of the FNPRM, it is stated that the FCC would expect "data speeds of at least 1 Mbps in the downlink direction and 600 Kbps in the uplink direction," and later on there is a chart of data speeds (§ 90.1405[11]) that reflects data speeds that have been commercially obtainable using 3G broadband services and, in some cases, 2G and 2.5G technologies. Therefore, it has to be assumed, at least by this submitter, that the technologies chosen by the FCC are required more for cell sector capacity. The document states that these data speeds serve only as design objectives, yet all of the comparisons of today's existing (and commercial) technologies with those specified by the FCC show that in a 5X5 or 6X6 portion of spectrum the capabilities, data speeds, and capacity of both of today's 3G technologies and those specified by the FCC are within percentage points of each other.

I believe the FCC would achieve the same goal while receiving more bids on the spectrum if it chose to auction the spectrum to a spectrum management or system management firm and then have the firm decide which technology to deploy based upon companies that would be contracted to build the network, Similarly, if the FCC were to accept the Request for Proposal Approach, the issue of common technology would, once again, not be a concern.

Commissioner Copps's Questions

In his concurring statement, Commissioner Michael J. Copps[12] raised some valid questions that have not been addressed by the FCC in the Third Notice of Proposed Rulemaking and I believe they need to be addressed prior to any further action by the FCC in this matter. Among the questions, several had to do with both the amount of data and other services that could be made available for the first responder community and if the cost (suggested by the FCC to be $48.50 per user) was to be per user or per device (that is, does a vehicle-mounted device and a belt-worn device operated by the same person count as two or one device for pricing purposes?).

The major wireless broadband network operators have recently discontinued offering flat-rate, all-you-can-eat data plans for both consumer and business customers and have gone to monthly fees. The pricing and amount of data on a monthly basis are designed to encourage data (broadband) usage while permitting network providers to manage the amount of data over their networks. Typical data pricing (list) plans are 50 MB per month for $39.99 and 5 GB per month for $59.99[13]. Overage is billed at $0.25 per MB for both plans. This is not the only pricing model being offered, but it does indicate a shift from unlimited to managed data.

---

[10] Push-to-Talk using VoIP on a Broadband network requires high-bandwidth capabilities coupled with highly reduced jitter and very low network latencies. This is the reason that Sprint and Verizon had to wait to implement Push-to-Talk until they had upgraded their systems to CDMA EV-DO Rev A which provides the lower latencies and has a layer of Quality of Service built in. HSPA has these same attributes. Further Push-To-Talk over VoIP will also require cell multicasting which drives up the cost of the networks but which is required to provide one-to-many PTT within a common cell sector.

[11] Table 1 to § 90.1405—Applications and Services QoS Attributes

[12] Concurring Statement of Commissioner Michael J. Copps (http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-230A3.pdf)

[13] Verizon Wireless published data plans: http://www.verizonwireless.com/b2c/store/controller?item=planFirst&action=viewPlanList&sortOption=priceSort&typeId=5&subTypeId=13&catId=409

Even with one of the two technologies the FCC has specified for the regional systems (LTE and WiMAX), the amount of traffic on this network will have to be managed on a per sector basis and a network basis. It is not practical, for example, to assume we can stream video from every patrol vehicle in a city where we can stream data over this network on a real-time basis without causing severe network congestion. There must be a compromise between what the first responder community is asked to pay for access and the amount of network traffic it can generate for that amount, as well as some mechanism to provide for times of extreme local or regional demand for services during a major incident.

I believe there is a pricing/usage model that will be acceptable to network operator(s) as well as the first responder community, and I also believe there needs to be an "occasional" use pricing model as well. This would allow for departments or federal agencies that might have a need for access during an incident but not on a day-to-day basis. Further, just as there is a cache of two-way radio equipment available for major fires, there should be a cache of devices or wireless modems available for this network and the network operator should only be paid for their use once they are distributed during an incident.

Voice Over IP

Commissioner Copps also raises the issue of Voice over IP (VoIP). At some point, VoIP will become standard in most networks, but not for a number of years. It is still cheaper to employ standard vocoders, but this will change over time. When and if VoIP communications and push-to-talk are available over the proposed network, they might be useful during major incidents at a command level, but for normal, day-to-day dispatch and incident command and control, existing systems or new voice primary systems on the balance of the first responder's 700-MHz narrowband spectrum will carry this traffic. One-to-many and simplex (peer-to-peer) voice is still the preferred and best way to dispatch and assign first responders to incidents, and for many field operations, first responders use radio channels that do not require any infrastructure at all (simplex).

It is important, I believe, for the Commission and others within the Federal Government to understand that the D Block and associated public safety spectrum will not solve the voice interoperability issues we face during incidents, be they major or minor. Data, VoIP, and messaging services can certainly help relieve the overcrowding that is now a major concern on first responder voice networks, but they will do little to solve the day-to-day local, regional, and major incident requirements where voice is the most important aspect of command and control.

Commissioner Copps goes on to comment on the fact that the Third Notice of Proposed Rulemaking and the triple auction portion could mean that as few as 11 of the 58 regions could be won at auction and the network would be built in those 11 regions while the Commission decided what to do with the other 47. It is conceivable to me that some within the FCC felt that by specifying two technologies (LTE and WiMAX) that will be battling for prominence well into the next decade might entice incumbent network operators to re-engage in the bidding process because if they don't, they could be providing WiMAX proponents with access to a nationwide swath of spectrum and, in some areas such as New York, this could result in a WiMAX network operator having access to all of the spectrum.

A Worst Case Scenario

In fact, it is possible that a successful bidder with WiMAX could merely go through the motions of working with the PSST, pay the $5 million each year, and build the network where many of the first responder organizations have already stated they would not make use of this network rather than starting the build where there is a demand for the service from the first responder community. A case could certainly be made that since there is a 15-year build timeframe on the network, the winning bidder should be allowed

to start building the network were it can attract the highest number of consumer and enterprise customers in order to kick start its revenue on the network rather than where the first responder community needs it most.

I do not believe we are, in the short term, responding in the best possible way to the needs of first responders by building a standalone network that could take 15 years or longer to construct (longer if based on a set of regional licenses where some are not won at auction). And I believe we cannot wait 10 years to see much of the network deployed nor an additional 5 years for the final build-out that is not required to cover as much of the population as first proposed.

I believe we need to step back and take a longer, harder look at the purpose of this network, the organizations that need it and will be using it, and other entities and groups that could benefit from it. Rural America would be better served if included in the construction of this network than by the proposed network in the AWS-3 band and/or TV White Space unlicensed services. There are a number of smaller wireless network operators already covering some of these rural areas, and there are hundreds if not more small power companies with right-of-ways for cell sites and that already provide their customers with truck roll services. It makes sense to incorporate these companies into the overall network design.

My Proposal

Therefore, my proposal for the D Block and Public-Safety Spectrum is as follows:

1) The mechanics of the transfer of the spectrum to a private party or parties should be reviewed, and while congressional concurrence might be necessary, I believe the FCC should review alternatives to the auctions proposed in the Third Notice of Proposed Rulemaking
    a. The FCC entertains Requests for Proposals for the construction and management of the D Block and first responder spectrum
    b. The FCC considers a spectrum lease by a qualified systems integration contractor for a period of 10 years
    c. The FCC auctions the spectrum, but participants are limited to organizations that would take on the task of system management and oversee the network construction as detailed below
2) The “winner” of 1 a., b., or c. above will enter into agreements with incumbent operators, large and small, and coordinate construction of the network. Included in the incumbent pool would be network operators that have a license for spectrum within the 700-MHz band whether or not they have a network in place, the theory being that it will be less expensive to build this new network as an add-on to existing 700-MHz construction than as a completely new network built out at a different time
3) Each of the network operators that agreed to build out a portion of the network would receive the following
    a. A tax credit based on the portion of the overall network it builds
    b. The right to use a portion of the network for its own “priority” customers during times of network congestion
4) During the construction period, each network operator agreeing to participate would provide the first responder community with access to its existing broadband wireless network on a priority basis and would charge an established fixed fee for usage, as well as agree to same-cost roaming on its network by other first responders
    a. This would enable the first responder community to make use of existing networks much earlier, and provide a seamless transition as each portion of the new network is completed
5) The master license holder would coordinate with the PSST and the FCC regarding build-out and operation of the network

6) Rural America would be included in the network plan and partial funding would be made available for rural construction using existing rural funding sources, perhaps augmented by the Federal government
    a. Rural build-out would commence in concert with metro build-out and as each rural area is completed, rural broadband including broadband to homes and businesses would be provided at a competitive rate
7) The master license holder would work with incumbent operators to manage data usage across the existing networks as well as over the new network
    a. There would be automatic fall-back incorporated in order to provide first responder coverage using existing broadband networks where necessary
    b. During major incidents, the master license holder would work with the networks providing broadband coverage at and around the incident, managing the broadband resources available and load balancing the amount of traffic on each network in order to minimize disruption to any commercial customers
    c. This type of system management could also be incorporated into the new network using the resources shared by the network operators with the master license holder
8) Each first responder customer would be "associated" to its home network operator that would "own" the customer from a billing perspective and each network operator would pay the master license holder a portion of the monthly revenue derived from the first responder community
9) The D Block and first responder technology would be determined by the majority of network operators and their existing roadmap for 4G broadband services
    a. All new devices would be capable of the 4G technology chosen as well as both of the existing 3G broadband technologies currently in use. This will permit fallback onto existing commercial networks and full roaming capabilities on all of today's existing 3G broadband networks

Conclusions

I believe that the above general plan could be implemented within the next year and first responders could start making use of the seamless roaming capabilities of the existing networks by the end of 2009, then move to the new network as each section is completed. This type of network planning would provide the first responder community with much more interoperability in a much shorter timeframe than the Third Notice of Proposed Rulemaking.

There are a number of political and operational issues that would need to be managed and worked out, but from a technology perspective, this type of network design and implementation is already possible and the initial portions could be implemented quickly and easily.

It is my belief that if the existing Third Notice of Proposed Rulemaking is adopted, not only will we see the second auction fail; we will once again have pushed the timeline for this much needed network far off into the future.

Respectfully submitted

Andrew M. Seybold